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ABSTRACT

Developed by the staff of SCAT (Support, Competency-Assistance and Training), the document provides information on systematic instructional procedures for teachers of exceptional children. Briefly addressed are the seven components of systematic instruction: initial assessment, establishment of long term goals, sequencing of short term objectives, selection and implementation of an instructional program, establishment and utilization of a sensitive measurement system, use of data decision rules to monitor program inteventions, and establishment and utilization of a system for on-going assessment. Appended are the systematic instructional process checklist and an outline of the steps involved in systematic instruction. (SBH)

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INTRODUCTION TO SYSTEMATIC INSTRUCTION

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preface

The material presented in this paper was developed by the staff of SCAT (Support, Competency-Assistance and Training) - a Title VI-G Child Service Demonstration Project. The SCAT staff is committed to training teachers of exceptional children to use systematic instructional procedures.

Systematic instruction is a PROCESS through which teachers provide maximum learning opportunities for exceptional students. As defined by SCAT, systematic instruction includes seven components:

1. Initial assessment;
2. The establishment of long term goals;
3. The sequencing of short term objectives;
4. The selection and implementation of an instructional program;
5. The establishment and utilization of a sensitive measurement system;
6. The use of data decision rules to monitor program interventions and;
7. The establishment and utilization of a system for on-going assessment.

This paper is an overview of the Systematic Instruction Model.

introduction

systematic instruction

What is "good teaching"? Perhaps most of you recall several teachers that you considered excellent. What did these teachers have in common?

Probably a teacher you considered to be "good" taught a subject that you liked or one in which you performed well. It seems only natural that in classes where children perform well, they receive positive attention for their work from the teacher, peers, or parents and/or delight in the knowledge that they are good pupils. Such attention and positive feelings can easily be translated into regard for the teacher as excellent or for the subject matter as fascinating.

But what about the class in which you did not perform well, but did consider the teacher to be a good one? The teacher of that class probably made you feel that the information you were learning was meaningful and that you were doing a good job, even though you weren't the "star pupil".

A common trait of "good teachers" might well be stated as "the abilitiy to recognize that a pupil is performing to the best of his or her ability, to communicate approval of this effort, and to encourage continuance of such effort." While not all teachers are distined for "stardom" in the field of education, it seems highly possible to provide teachers with the skills necessary to become good teachers as we've defined it, that is, to provide for each pupil a learning environment which leads to optiaml performance.

purposes

The purpose of this paper is to introduce a process which provides teachers with a systematic approach to the education of pupils — one which attempts to ensure that teachers are providing relevant educational experiences for their pupils and that pupils are performing to the best of their abilities. This process is known as systematic instruction, the systematic instructional process, or the systematic instructional model. Within the scope of this paper it is not possible to provide you with sufficient information about each component so that you could readily implement the process. Rather, the purpose here is to <u>familiarize</u> you with the components of the systematic process and increase your understanding of their function.

Over the years various curricula and instructional methods have been introduced to meet the educational needs of both teachers and pupils. While some methods and materials have proved highly successful for large numbers of pupils, none have proved successful for all children. Slowly, there has emerged a recognition that individual pupils vary according to: (1) the amount of time which they need to acquire skills, (2) the methods by which they most readily acquire and retain skills, and (3) the readiness they demonstrate in acquiring new skills at different ages. Therefore, to ensure optimal educational opportunity for pupils,

any system adopted by educational personnel should allow flexibility to meet the unique learning characteristics of pupils. Thus, educational practices must be viewed as a part of the total educational environment which reflects good teaching and meaningful learning.

outcomes

After reading this paper you should be able to:

1. state the seven steps that make up the systematic instruction process;
2. recognize a rationale for each step;
3. generally define each step;
4. recognize strenghts and weaknesses in your own teaching;
5. start to improve those competencies you consider weak and sophisticate those you consider strenghts.

content

definition

Systematic instruction is a procedure designed to create an optimal learning environment. It is a process in which teachers follow a set of guidelines that direct their teaching activities regardless of specific curricula or techniques. Probably the most profitable way of finding out just what constitutes systematic instruction is to forget all the words and phrases you have hitherto associated with it. Start thinking of systematic instruction as a PROCESS -- a process which directs the optimal functioning of a learning environment.

Unlike models which focus on abstract theories or hierarchies not directly related to classroom instruction, in this paper systematic instruction is a process which teachers and administrators can comprehend and utilize. Systematic instruction is the utilization of earthy practices such as proper assessment and accurate programming. We have attached labels to components of the process for identification and communication purposes. Focus your attention on the function of each component as opposed to the label. As you do so, you may find that you are currently incorporating many aspects of systematic instruction. Likewise, you may encounter others, using different terminology, who describe and support the same process.

stages

Whatever the terminology, the systematic process should include these stages: (1) assessment of general and specific skills; (2) establishment of long-term goals for each skill area or behavior of concern; (3) establishment and sequencing of short-term objectives (steps leading to each long-term objective); (4) selection and implementation of an instructional program; (5) establishment and utilization of appropriate and sensitive measurement systems for each behavior; (6) selection and presentation of meaningful interventions; and (7) utilization of an ongoing assessment system. By "teaching through these stages" educators create and participate in systematic instruction. In the beginning and in the end, they optimize the learning environment for each pupil. At the same time, parents and administrators are provided precise statements of educational objectives and accurate and meaningful documentation of each learner's progress toward these objectives. In this age of federal grants, state regulations, and parental concern for quality education, this documentation provides an accountability system.

components

In the following section the significant function and interrelatedness of each component is briefly described. This should help you understand the process when you hear it referred to by different names.

initial assessment

Initial assessment, or finding out just what it is a child can or cannot do, is the first task to be completed by a teacher who desires to develop relevant educational experiences for his or her pupils. Obviously, good teaching implies teaching what needs to be learned — not just placing each learner in the first chapter of a predetermined text. Initial assessment means contacting persons (previous teachers, other involved professionals, and parents) and reading records to find out as much about a learner as possible. It means administering formal tests (diagnostic or achievement) when available scores on such tests are out-dated or invalid. Initial assessment likewise means administering teacher-made tests, specific skill tests or sequence-related tests to determine precise levels and conditions of learning for each student. And last, but surely important, is the need for the teacher to spend some time meaningfully observing the behavior of the student. Through personal contact with former teachers or through school records, a teacher might learn that a pupil daydreams a lot. However, this is not relevant to classroom programming. Through meaningful observation, specific information such as, "the pupil continually leaves his seat to

stare out the window during math," can be collected. This information is pertinent in planning programs for the learner.

long term goals

Once a teacher has gathered general information and precise data on what a child can do the teacher should compile this assessment information and use it to write long-term goals. To be relevant to the development of classroom programs, long-term goals must be written to include the learner, the desired behaviors for the academic year, the conditions under which the learning will occur, and the criteria for success. The importance of this step cannot be overstated. Long-term goals provide the learner, the teacher, the parents, and the administrator with specific and concrete statements of what skills a child should have at the end of nine months.

Consider taking a trip. Contrast the difference between taking a trip having specified your destination and taking a trip with no special goal in mind — for example, leaving Seattle this morning with a goal to reach Mexico City by nightfall three days hence, as opposed to merely leaving Seattle. Without a goal you know neither which direction to go nor how fast to travel; having established a goal you know both these facts (head south and really hustle). With this information you can judge whether or not the direction and the rate at which you are traveling will get you to your final destination.

It all depends on where you are, where you want to go, and when you want to get there. In teaching, initial assessment information tells you where you are, while long-term goals identify where you're going and when you plan to arrive. These two bits of data tell you a good deal about how fast you need to travel, and help you to set intermediate goals or short-term objectives. In summary, long-term goals identify important areas for educational programming and help teachers focus on the needs of the learner.

short term objectives

Sequencing approximations toward long-term goals -- or the establishment of short-term objectives -- is the next step in the process. Writing and sequencing short-term objectives outlines the steps and procedures which lead to attainment of the long-term goals. Usually it is advisable to write short-term objectives for short periods of time -- anywhere from one week to three month periods -- and to write them in precise, behavioral terms specifying the learner, the exact behavior, the conditions under which the behavior will occur, and the criterion for success.

By teaching to a series of short-term objectives, teachers are more likely to proceed systematically and are less likely to engage in random instruction. Again, by writing very specific objectives, everyone involved with the learner, and indeed the learner himself, has a good idea of what needs to be learned Because short-term objectives include specific criteria for success, the teacher will also know if and when the materials or skills are learned.

instructional programming

The fourth step in the process is the selection of instructional programs and curriculum materials directly related to each short-term objective. Choosing appropriate and functional materials is not an easy job. Doing it properly means knowing what materials are available in the school and district, how much money is available for purchase of new materials, and the local school district's most recent policy for ordering materials. It means having the skills to create specific materials when none are available and to modify existing materials to meet specific pupil needs. Teachers and administrators need curriculum evaluation skills; most significantly, they need to know what materials can be used or developed to meet specified objectives. Beyond selection, teachers need skills in efficiently implementing instructional programs. Random selection or implementation of materials results in random instruction -- random learning. Successful completion of the first three steps in the systematic instructional model facilitates the implementation of this fourth step. Through initial assessment, the teacher discovers what the learner can do and what he can't do. Based on this information, the teacher writes appropriate long-term goals and short-term objectives. Having completed these steps, it is significantly easier to select materials which are relevant to the learning needs of each pupil.

measurement

The establishment of appropriate measurement systems means that for every objective written, whether it be long- or short-term, there must be a measurement system for showing whether the pupil is reaching that objective. Notice the wording: "reaching" rather than reached: measurement must be present tense, not past tense. To be useful for a teacher, a measurement system should follow the learner's progress from the time the program is implemented to attainment of the objective. The measurement system should provide the teacher with continuous information so that if a pupil is having difficulty on a task, program changes can be made immediately. Recall the old saying, "Don't wait until the horse is stolen to shut the barn door." If a teacher waits until the end of a unit of instruction to measure a pupil's

progress, it may already be too late to avoid failure. Then it is a matter of remedial work to bring the pupil up to mastery; meanwhile, there is new learning that should be taking place. Measuring after the learner has learned is like budgeting after the paycheck is spent.

Establishing a measurement system does not have to be complicated or costly. In many cases, a simple graph of daily scores will provide adequate information; in a few cases more elaborate systems will be required. But whatever type of system is used, it must provide you with this information: Is the learner nearing the established objective? Is the learner regressing or having more problems than success? Is the learner stagnating or showing no growth over a period of days?

A secondary function of measurement systems is accountability. By showing the teacher how the learner is doing, measurement indicates to the teacher much about the effectiveness of his or her teaching; it gives parents information about the daily or weekly progress of their child; and it informs school principals and district superintendents about the quality of service being provided to the pupils they serve. The same information can be used to tell learners of their progress toward objectives. It can encourage them to become more responsible for their learning behavior.

interventions

Step five is the selection and presentation of appropriate interventions. After a teacher collects several days of data, he or she will be able to decide if the learner is performing successfully in the program. If the data reveal that progress is satisfactory, no change or intervention need be made in the established program. However, should the learner be failing with the task or progressing too slowly, it is the responsibility of the teacher to alter the program so that the learner succeeds. If, for example, a pupil's daily data indicate that he is continually doing poorly on his math assignment, the teacher may choose to intervene -- or make a change in his program -- by doing one of several things. The teacher could add more practice time or add additional practice for errors only; he or she could give the pupil an aid, such as an abacus, or make free time dependent on improved math performance. There are many options. These are called instructional interventions and are crucial elements of quality instruction. Without appropriate interventions, good pupils lose valuable learning time and poor pupils continue to fail; with it, every child advances toward his or her own goals successfully.

ongoing assessment

As in every good and successful program, the last component in the systematic instructional model is follow-up or "ongoing assessment." Follow-up and continual reassessment of children's performance will keep teachers informed about retention of information and skills. Also, classroom teachers can use retention or maintenance checks to determine how well a child is using learned information and skills in varied or new situations and settings. This information can then be placed in the child's records for the next teacher to review.

Thus, the process is complete with each component serving a vital function within itself and providing continuity and purpose to the whole.

summary

To ensure success, both teachers and administrators must:

(1) recognize that appropriate education requires meeting the needs of individual pupils;

(2) recognize that systematic instruction is a process rather than a prescription for the education of children. It provides the guidelines for approaching the education of children, allowing leeway for a variety of teaching styles and content;

(3) recognize that each step included under the heading "Systematic Instruction" is necessary for the achievement of an appropriate educational environment for children. Disregard for any one step will significantly decrease the effectiveness of the model and diminish the quality of educational services provided;

(4) be willing to critically analyze and assess their present approach(es) to meeting pupils's needs; and

(5) be willing to devote the time and effort necessary for the implementation of systematic instruction. Initially, the cost will be high. However, as teachers become familiar with the procedures, develop the necessary skills for each of the steps, and observe the efficient and effective learning environment they have created, the results will be impressive.

For concise and complete information and instruction in implementing each of the seven steps, individual monographs have been prepared by the SCAT, Idaho, Title VI-G Project. These materials are available through each of the Regional Title VI-G offices at the University of Idaho, Idaho State University and Boise State University.

appendices

THE SYSTEMATIC INSTRUCTIONAL PROCESS CHECKLIST

This checklist is designed to help you realize how much, or to what extent, you already employ systematic instructional procedures.

	YES	SOMETIMES	No
INITIAL ASSESSMENT			
Did you find out as much about the child as possible by:			
- interviewing previous teachers or associated professionals?			
- talking with the child's parents?			
- observing the child in a classroom setting?			
Did you administer or review the results of:			
- any formal tests (diagnostic or achievement)?			
- any informal tests such as			
- teacher-made tests?			
- skill specific tests?			
- placement tests from various curricula?			
ESTABLISHMENT OF LONG-TERM OBJECTIVES			
Using the information gathered from Initial Assessment, did you:			
- identify important areas of focus for the year?			
- set specific goals for the pupil to achieve for the year?			
- write these goals in measurable, behavioral terms so that they include the learner, the behavior, the conditions under which the learning will occur, and the criteria for success?			
ESTABLISHMENT OF SHORT-TERM OBJECTIVES			
For each long-term objective, did you:			
- identify and sequence steps which lead to that objective?			
- write these intermediate objectives in measurable, behavioral terms so that they include the learner, the behavior, the conditions under which the learning will occur, and the criteria for success?			

	YES	SOMETIMES	NO
SELECTION AND IMPLEMENTATION OF INSTRUCTIONAL PROGRAMS			
Did you establish a program which will help the learner reach each short-term objective by: - identifying or developing materials? - establishing a series of teaching procedures or techniques?			
ESTABLISHMENT OF APPROPRIATE MEASUREMENT SYSTEMS			
For each short-term objective, did you: - specify what behavior you were going to measure and - choose a measurement system which was compatible with that behavior which provides you with specific information about the learner's progress toward the objectives?			
THE SELECTION AND PRESENTATION OF APPROPRIATE INTERVENTIONS			
If the learner is not progressing toward an objective, do you: - change the program components and/or - provide additional reinforcers and - monitor the effectiveness of the intervention so new interventions can be made if necessary?			
THE ESTABLISHMENT OF ONGOING ASSESSMENT SYSTEMS			
Do you have a system for: - intermittent review of information and skills learned?			
Do you have a system for - intermittent review of information and skills not learned?			

step	reasons	implementation
Initial Assessment	1. to provide information about child's present level of skill development (performance level) in order to ensure that instructional programs are built on acquired skills 2. to provide information to parents, educational personnel and relevant individuals for consideration in educational planning	1. use of child reports - progress reports - medical reports 2. interviews of previous teachers, parents, and other professionals 3. formal testing - diagnostic tests - achievement tests 4. informal testing - teacher-made tests - specific skill tests - sequence related tests 5. teacher observation
Establishment of Long-Term Goals	1. to provide guidelines for the focus of instruction 2. to provide information to parents, administrators, teachers, and interested individuals as to the direction of educational programs 3. to provide a basis for yearly evaluation of instructional procedures and programs 4. to meet state requirements where necessary	1. write goals which: - reflect important areas of focus - define specific need areas
Establishment of Short-Term Objectives	1. to provide a "plan of action: for attainment of the long-term objectives 2. to provide the basis for specific instructional programs 3. to provide a basis for the evaluation of instructional procedures and programs	1. establish sequence from commercial materials and/or 2. sequence developmental skill areas and/or 3. sequence from least complex to most complex skills and 4. write each short-term objective in measurable, behavioral terms specifying - the learner - the behavior - the conditions - the criteria for success

step	reasons	implementation
Selection and Implementation of Instructional Programs	1. to provide individual teachin programs based on current performance levels 2. to provide programs or materials which will ensure that long- and short-term objectives are met 3. to provide programs and materials that ensure continued motivation for learning	1. select materials which are appropriate to sequence step or specific short-term objective - commercial material - teacher-made material - teacher-modified material - selected teaching procedures 2. select procedures which are appropriate to - the instructional materials - the learner 3. implement selected materials and procedures
Establishment of Appropriate Measurement Systems	1. to provide data by which the teacher or other educational personnel can determine whether a child is successfully moving toward the accomplishment of educational objectives 2. to provide objective information to parents, administrative personnel, etc., as to a child's actual performance	1. establish a measurement system which - reflects the behavior specified in long- and short-term objectives - accurately reflects pupil performance - displays information in a manner which communicates pupil progress
The Selection and Presentation of Appropriate Interventions	1. to ensure a pupil meets educational objectives 2. to prevent failure	1. antecedent events (materials as well as methods) - direct teacher instruction - non-direct teacher instructional activities 2. consequent events or consequences - feedback on performance - reinforcement contingencies
The Establishment of Ongoing Assessment Systems	1. to ensure continued evaluation of overall pupil performance 2. to provide summative information for parents and future teachers on the performance levels of pupils	1. establish programs which measure pupil performance through review or maintenance checks 2. periodically re-assesspupil performance

resources

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